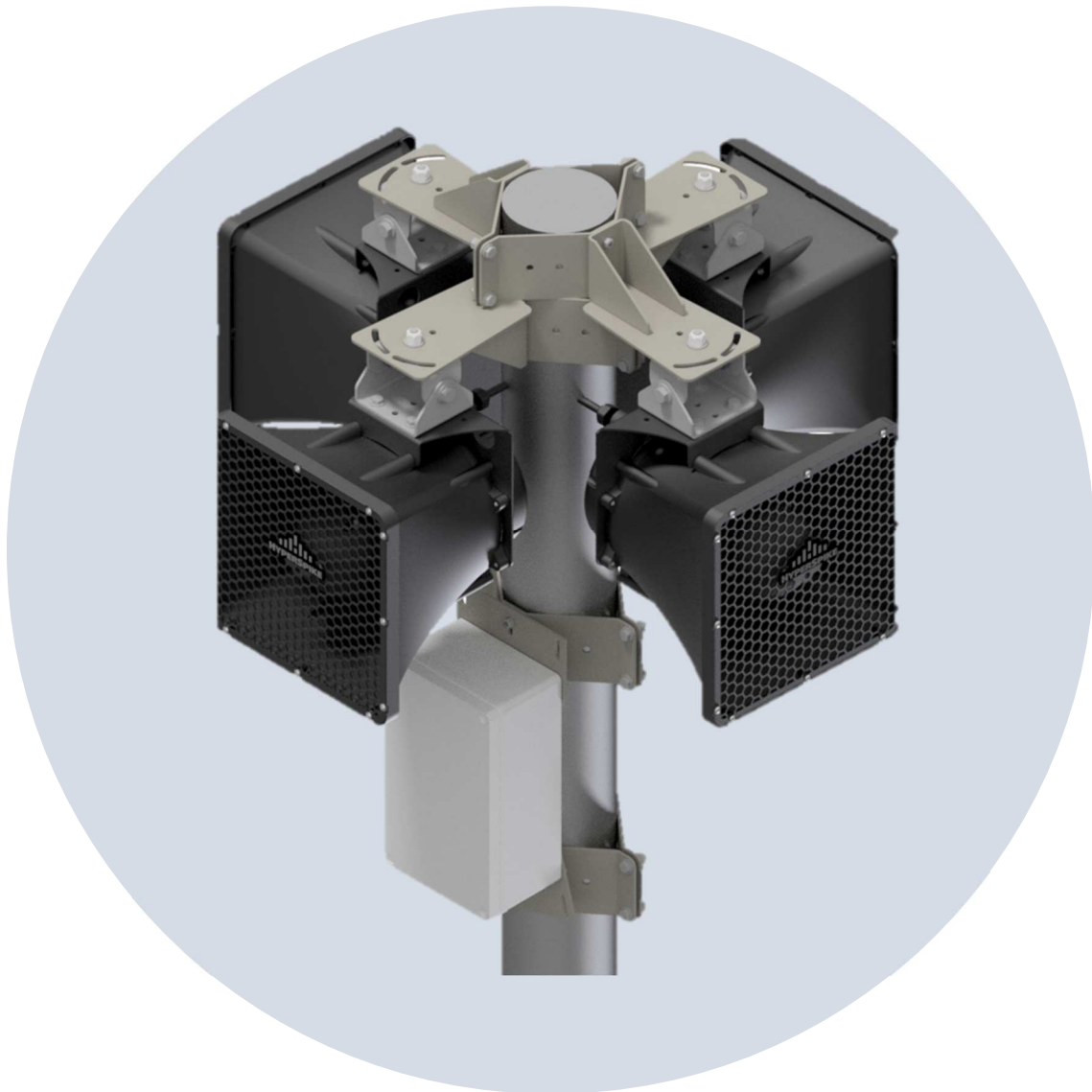




Installation and Maintenance Manual HyperSpike® TCPA-Q Array Kit



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SAFETY PRECAUTIONS

WARNING:

WHEN MOUNTING OUTSIDE ENSURE THE SUPPORT SYSTEM USED HAS THE PROPER WIND LOAD RATING AND COMPLIES WITH LOCAL STANDARDS

Sound Safety Measures

The National Institute for Occupational Safety and Health (NIOSH) recognizes 120 dB as the threshold of pain for unprotected hearing. Operators should wear hearing protection and ensure that personnel are not directly in front of the device, at close range, when the power is ON.



1. OVERVIEW

1.1 Introduction

This manual provides instructions on installation of the TCPA-Q Array Kit. The Array Kit and these instructions are intended for use with HyperSpike TCPA-10 speakers only.

Related Manuals

- 90250A-MAN-ENCOMPASS
- 98030A-MAN-TCPA10

Pole Diameter Compatibility: 4.5” – 6.5”

1.2 Standard Equipment / Optional Accessories

Table 1: Items Included with 4 Horn Array Kit (-801)

Part Number	Description	Quantity
90219A-802-XX	TCPA-10 4ohm Speaker	4
90309A-MAN-TCPA10	Manual	1
51517C-1	Pole Mount Bracket (A)	8
51517C-2	TCPA-Q Bracket (B)	4
51544C-1	Transformer Bracket (C)	2
72377B-803	TCPA-Q Pivot Knuckle (D)	4
72009C-801	Array Transformer (E)	1
91771A829	10-32 Flat Head Screw (F)	12
91831A411	10-32 Lock Nut (G)	12
91772A519	6-32 Pan Head Screw (H)	4
91525A412	#6 Washer (J)	4
91831A007	6-32 Lock Nut (K)	4

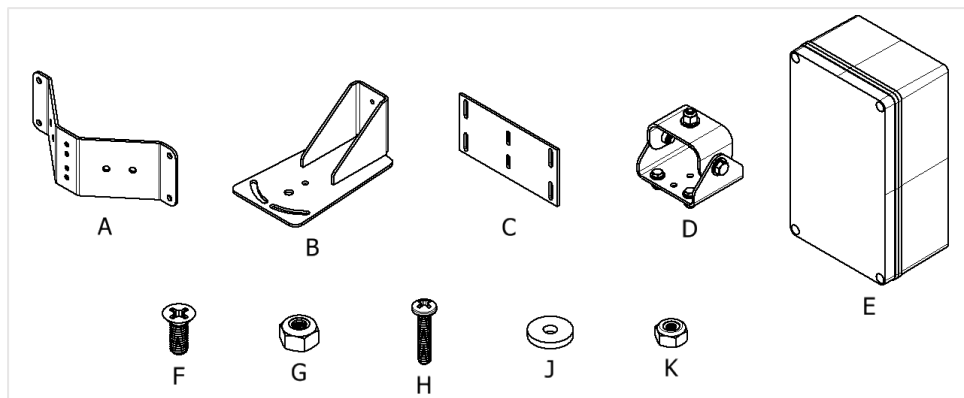
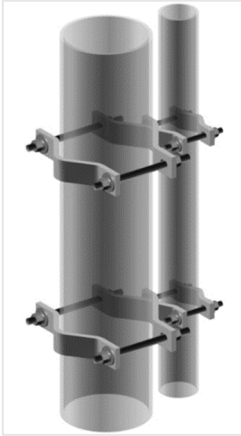


Figure 1: Included Hardware

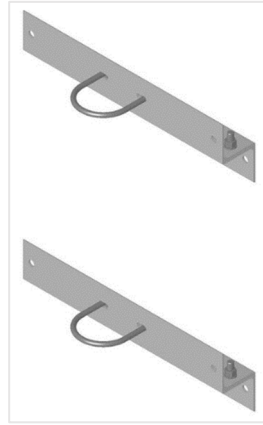
Table 2: Optional Mounting Accessories

Part Number	Description
72117C-801*	Pole Mount Kit
72117C-802*	Wall Mount Kit
72117C-803	Non-Penetrating Roof Mount Kit w/ 10ft Pole
51680C-1	4.5" OD x 63" Mounting Pole

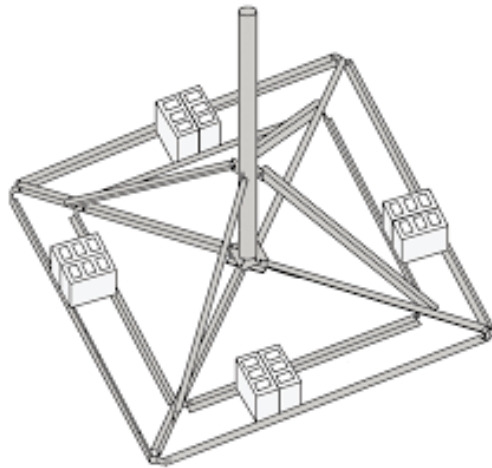
* Mounting pole not included, see 51680C-1 for mounting pole option.



72117C-801: Pole Mount Kit
Adapts to 8"-16" OD Pole to 4"-9" Pole



72117C-802: Wall Mount Kit
Supports 4.5" OD Pole



72117C-803: Non-Penetrating Roof Mount Kit
Includes 4.5" OD x 10ft Long Pole

2. MOUNTING OPTIONS

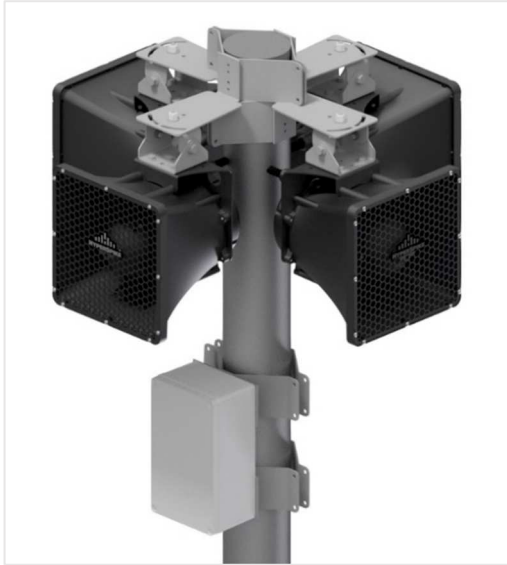


Figure 2: Omni-Directional Array

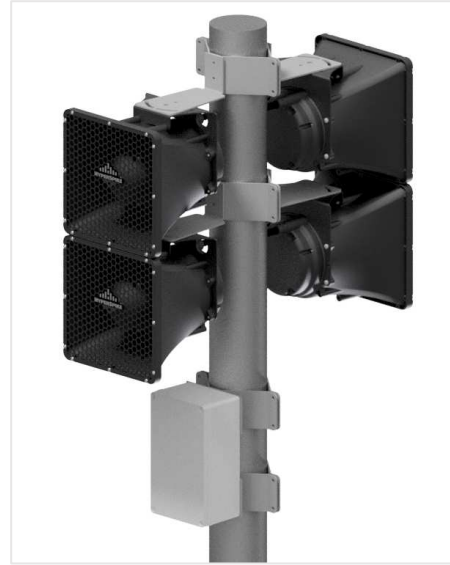


Figure 3: Bi-Directional Array

* Use of knuckles optional. When used will require greater spacing between speakers.



Figure 4: Linear Array

* Use of knuckles optional. When used will require greater spacing between speakers.

3. TRANSFORMER

3.1 Recommended Hole Location

To connect the TCPA-10's SJOOW cable to the transformer assembly, utilize the cable gland seals included with each TCPA-10. The gland seal requires a .740" hole to be drilled in the transformer assembly. Consult the following recommended hole locations before drilling. The audio input connection shall be supplied by the customer.

Note: It is recommended all holes and strain-reliefs are installed prior to mounting the transformer.

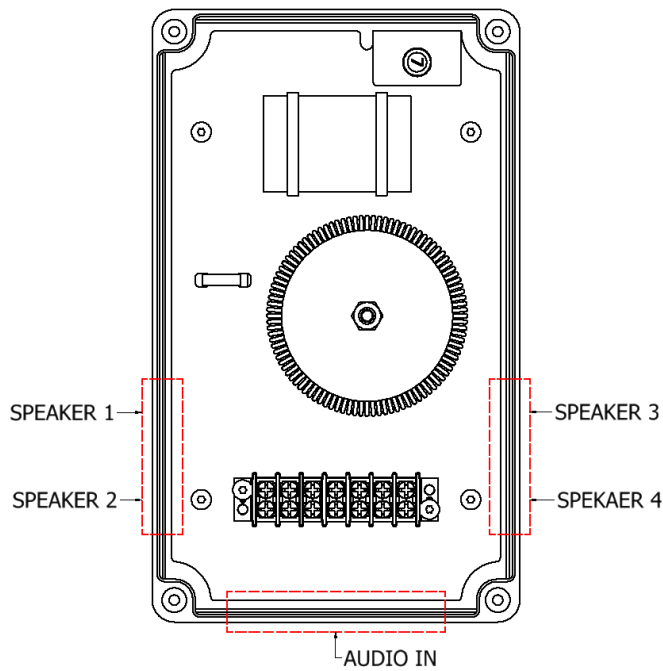


Figure 5: Recommended Hole Locations

3.2 Lid Installation

The orientation of the transformer cover is important to maintaining a watertight seal. Refer to **Figure 6** to confirm alignment before replacing the transformer cover.

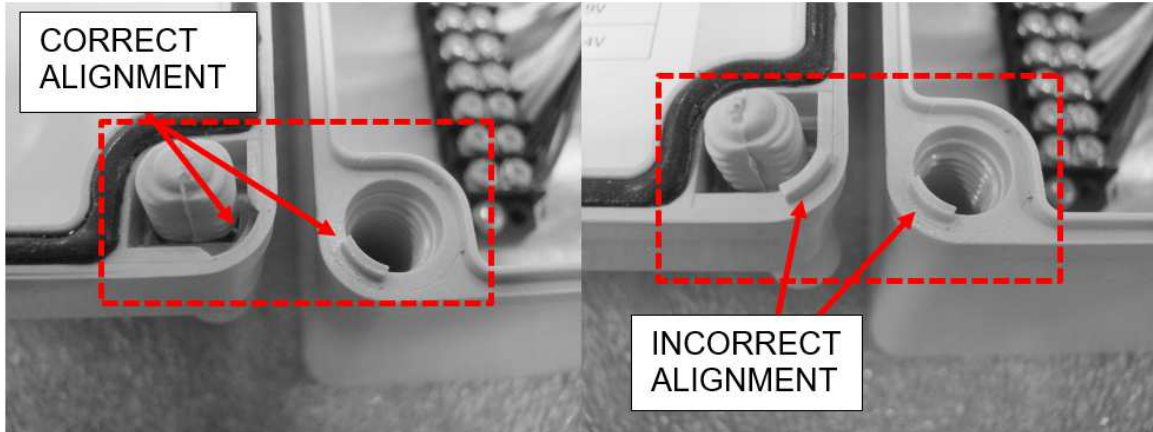


Figure 6: Transformer Lid Orientation

3.3 Circuit Breaker Reset

The transformer has an integrated circuit breaker that protects itself from the line surges and short circuits. The circuit breaker is located inside the transformer housing near the capacitor. If the breaker would trip, follow the steps below:

1. Remove the transformer housing lid.
2. Push to reset the breaker (the button on the breaker should push in and stay).
3. Install the transformer housing lid.

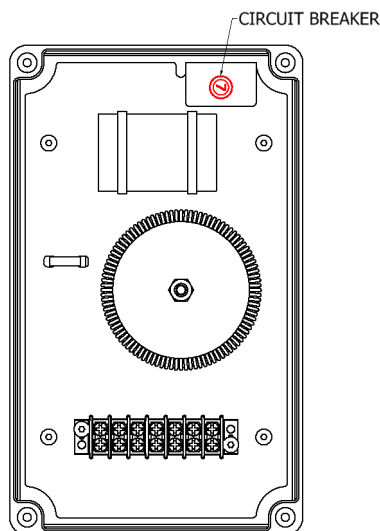


Figure 7: Circuit Breaker Reset

3.4 Wiring Instructions

The Transformer is pre-wired with four 5-position push-in wire splice connectors. These connectors accept 14-22 AWG stranded wire. Install the TCPA-10 speaker wires so that the wire colors match the pre-installed wire. For reference Red and White are Speaker (+) Black and Green are Speaker (-). Wire audio input as showing in **Figure 8**.

Note: It is recommended that the speakers and transformers are installed onto the pole prior to wiring.

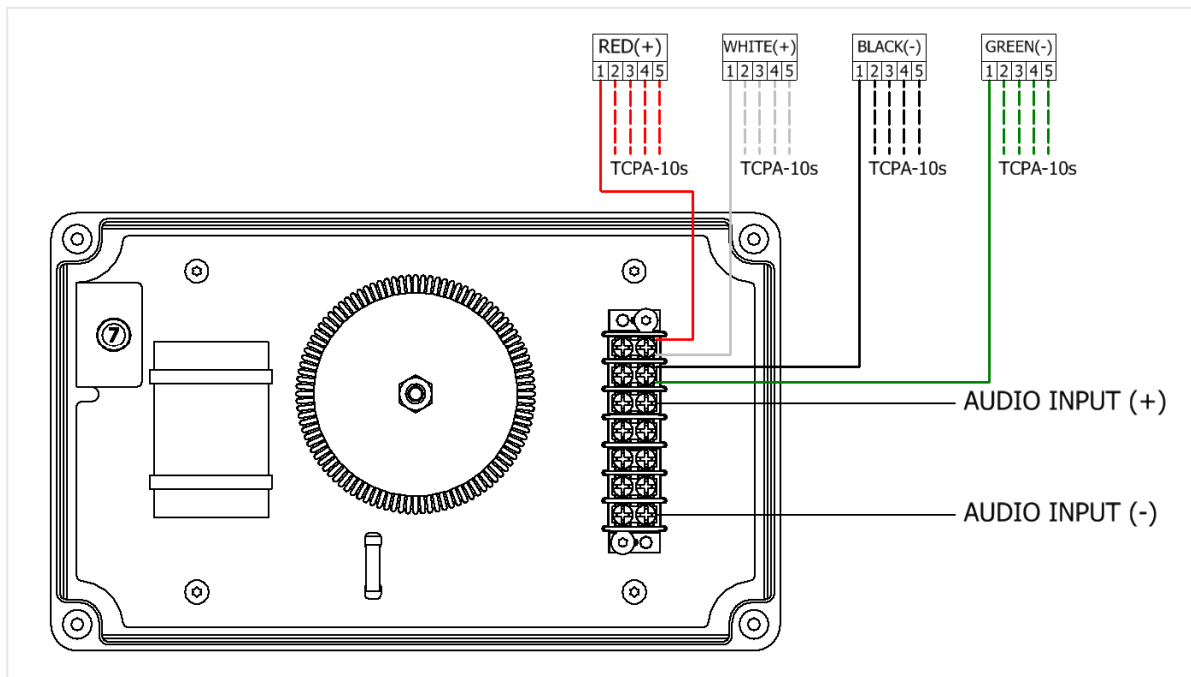


Figure 8: Transformer Wiring

4. ASSEMBLY

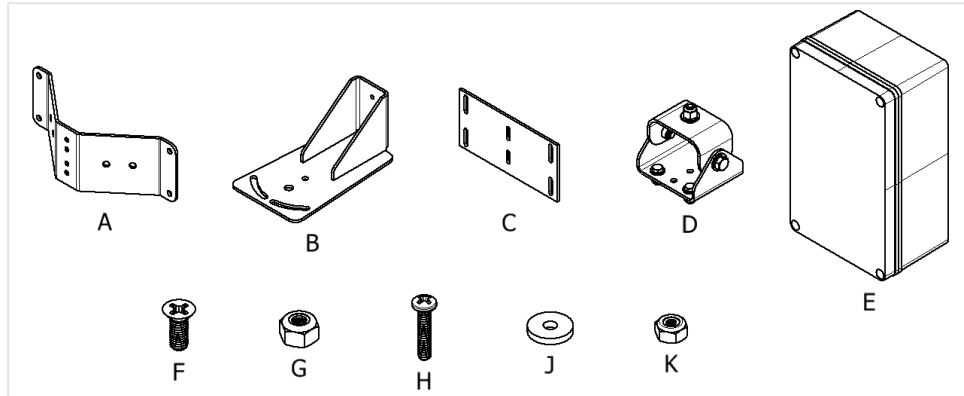


Figure 9: Included Hardware

Table 3: Hardware Key

Item	Description
A	Pole Mount Bracket
B	TCPA-Q Bracket
C	Transformer Bracket
D	TCPA-Q Pivot Knuckle
E	Array Transformer
F	10-32 Flat Head Bolt
G	10-32 Nut
H	6-32 Pan Head Screw (H)
J	#6 Washer (J)
K	6-32 Lock Nut (K)

Table 4: Required Hardware Not Included

Qty	Description	4.5" Pole	6.5" Pole
16	1/4-20 Bolt / Carriage Bolt	1.00" Lng	3.63" Lng
32	1/4" Flat Washer	-	-
16	1/4" Lock Washer	-	-
16	1/4" Hex Nut	-	-

WARNING:

This kit with speakers can weigh up to 75 Lbs. Ensure pole can support weight. Wind loading can add additional stress on the pole. Always follow appropriate local codes regarding pole mounting

4.1 TPCA-Q Bracket Assembly

1. Assemble Pole Mount Bracket (A) to TPCA-Q Bracket (B) using two 10-32 Bolts (F) and two 10-32 Nuts (G).
2. Assemble, three additional brackets to create a total of four TPCA-Q Bracket Assemblies.

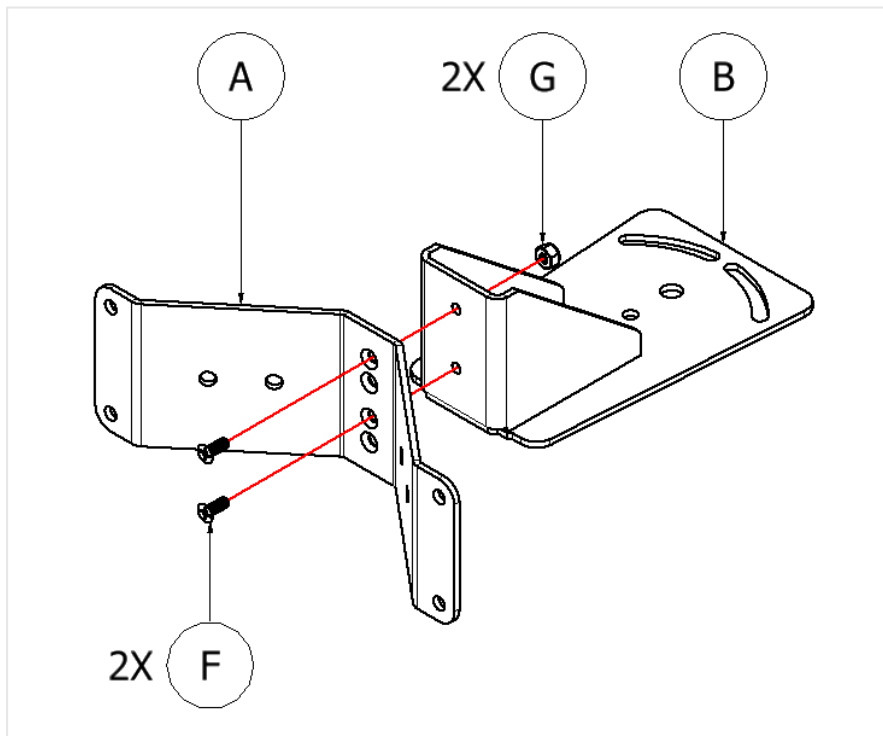


Figure 10: TPCA-Q Bracket Assembly

4.2 Transformer Bracket Assembly

1. Assemble Pole Mount Bracket (A) to Transformer Bracket (C) using one 10-32 Bolt (F) and one 10-32 Nut (G) as shown.

Note: This assembly is intended for bracket spacing between 10.0" - 11.5". If bracket spacing greater than 11.5" is required, adjust as needed.

2. Assemble, one additional bracket to create a total of two Transformer Bracket Assemblies.

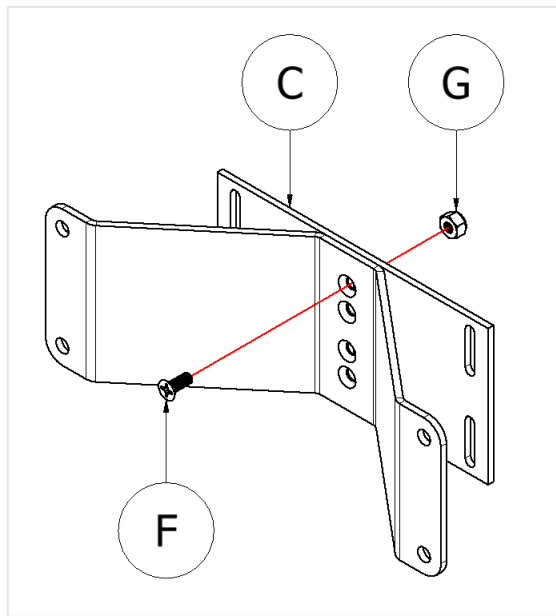


Figure 11: Transformer Bracket Assembly

4.3 Assembly to Pole (Omni-Directional)

1. Take two TCPA-Q Bracket Assemblies oriented such that the protruding flat is on top. Determine the desired location of the bottom row speakers.
2. Using customer supplied 1/4-20 hardware bolt the two assemblies to each other around the pole. Use Bolt and washer on one side and washer, lock washer, and nut on the opposite side.

To ease with assembly, and if possible, the brackets can be loosely bolted to each other and slid down the pole to the desired position.

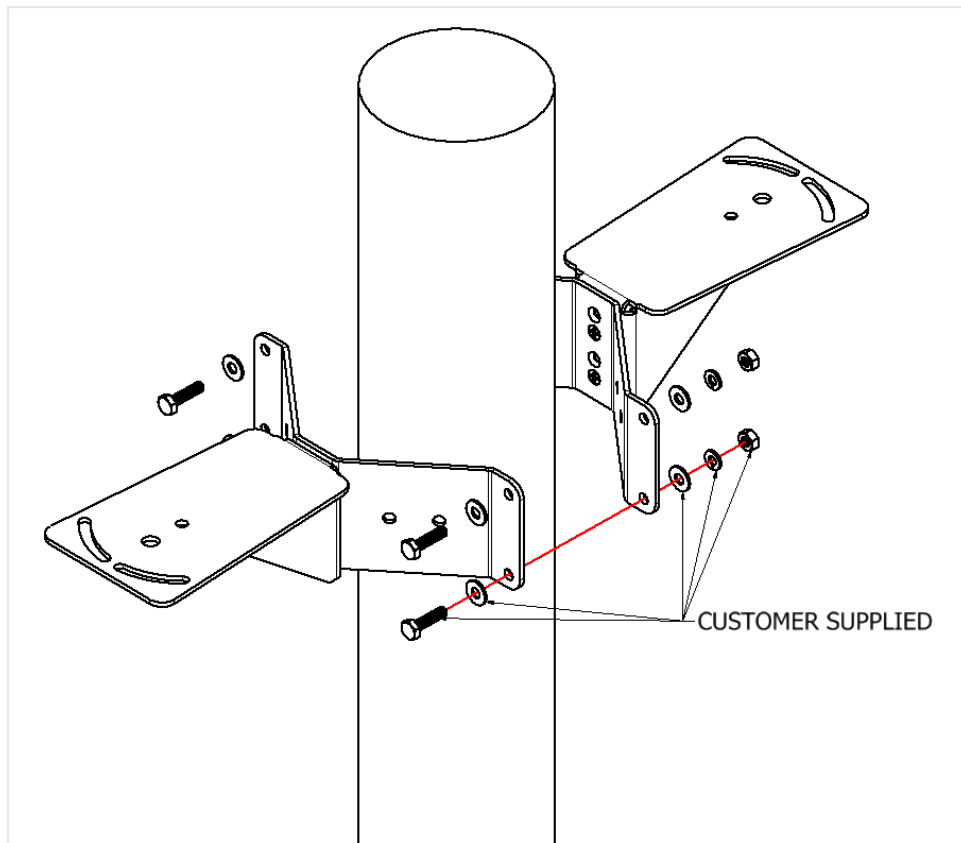


Figure 12: Omni Bottom Bracket Assembly

3. Take the remaining two TCPA-Q Bracket Assemblies oriented such that the protruding flat is on the bottom. Clock the two brackets to they are 90° to the bottom row of brackets.
4. Using customer supplied 1/4-20 hardware bolt the two assemblies to each other around the pole. Use Bolt and washer on one side and washer, lock washer, and nut on the opposite side.

To ease with assembly, and if possible, the brackets can be loosely bolted to each other and slid down the pole to the desired position.

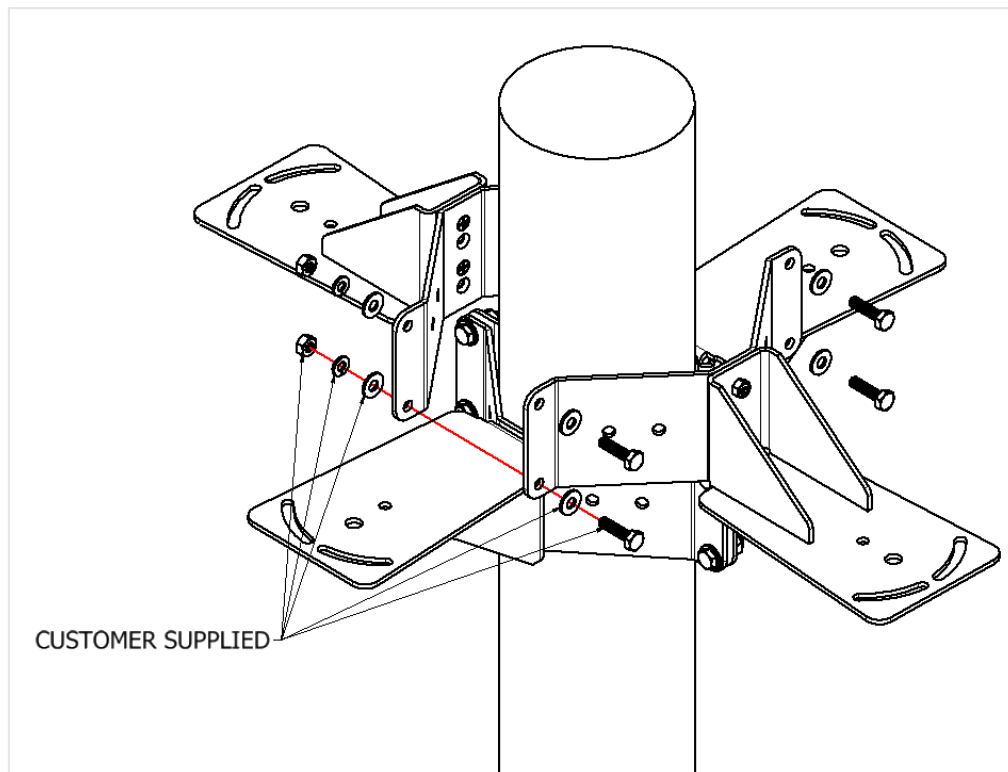


Figure 13: Omni Top Bracket Assembly

5. Mount Transformer (E) to the two Transformer Bracket Assemblies using bolt (H), washer (J), and locknut (K) as shown.

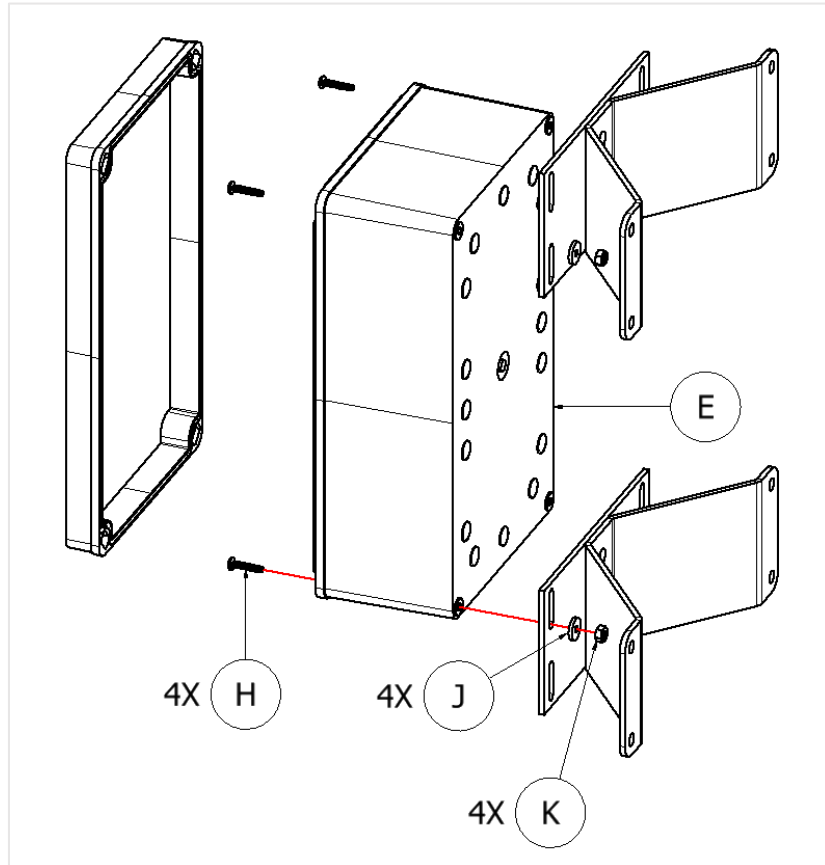


Figure 14: Transformer Assembly

6. Orient Transformer assembly so the gland seals are facing towards the ground. Using one Pole Mount Bracket (A) bolt the top brackets together using customer supplied 1/4-20 hardware. Use Bolt and washer on one side and washer, lock washer, and nut on the opposite side.

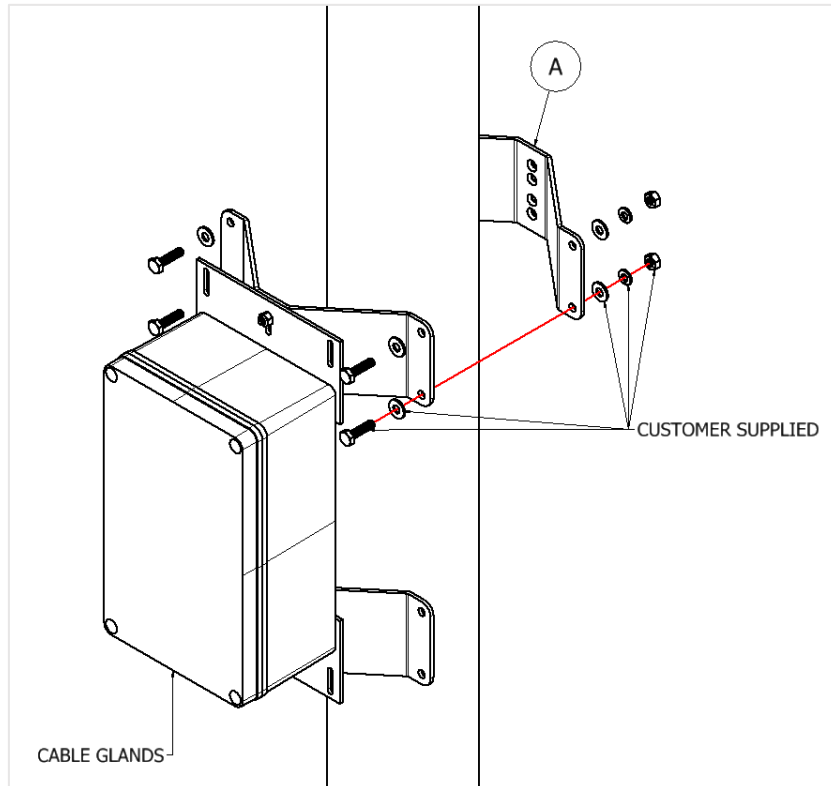


Figure 15: Transformer Top Bracket Assembly

7. Using one Pole Mount Bracket (A) bolt the bottom brackets together using customer supplied 1/4-20 hardware. Use Bolt and washer on one side and washer, lock washer, and nut on the opposite side.

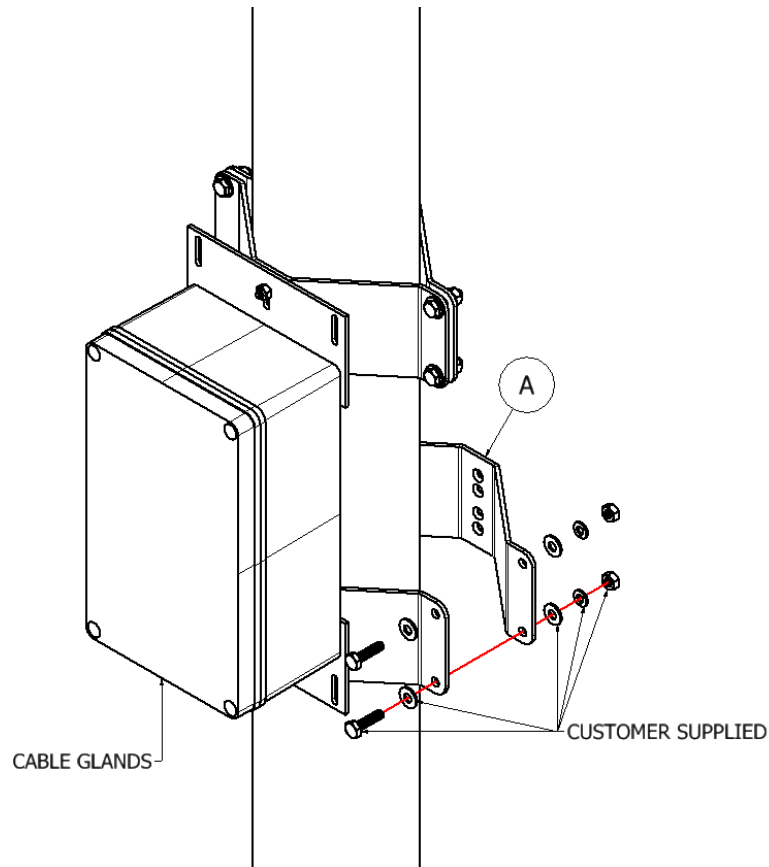


Figure 16: Transformer Bottom Bracket Assembly

8. Install Knuckles (D) per **Section 4.6**
9. Install TCPA-10 speakers per **Section 4.7**
10. Wire TCPA-10 Speakers to Transformer per **Section 3.4**

NOTE: It is recommended that a drip loop is made when routing speaker cables to reduce risk of water intrusion in transformer.

4.4 Assembly to Pole (Bi-Directional)

1. Take two TCPA-Q Bracket Assemblies oriented such that the protruding flat is on the bottom. Determine the desired location of the bottom row speakers.
2. Using customer supplied 1/4-20 hardware bolt the two assemblies to each other around the pole. Use Bolt and washer on one side and washer, lock washer, and nut on the opposite side.

To ease with assembly, and if possible, the brackets can be loosely bolted to each other and slid down the pole to the desired position.

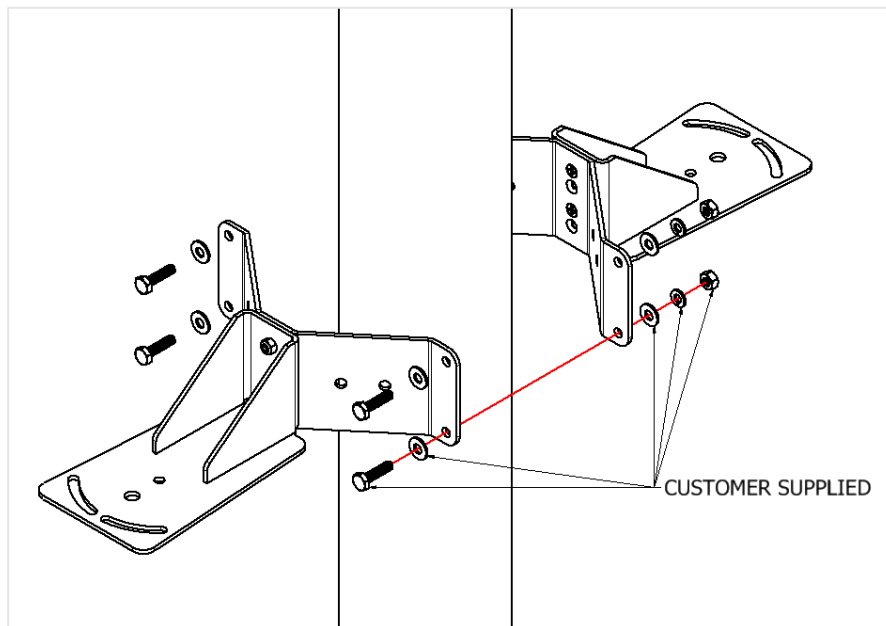


Figure 17: Bi-Directional Bottom Bracket Assembly

3. Take the remaining two TCPA-Q Bracket Assemblies oriented such that the protruding flat is on the bottom. Position the brackets so that the distance between the top brackets and the bottom brackets is a **minimum of 10"**. If installing Knuckles, a **minimum of 12.5"** is required
4. Using customer supplied 1/4-20 hardware bolt the two assemblies to each other around the pole. Use Bolt and washer on one side and washer, lock washer, and nut on the opposite side.

To ease with assembly, and if possible, the brackets can be loosely bolted to each other and slid down the pole to the desired position.

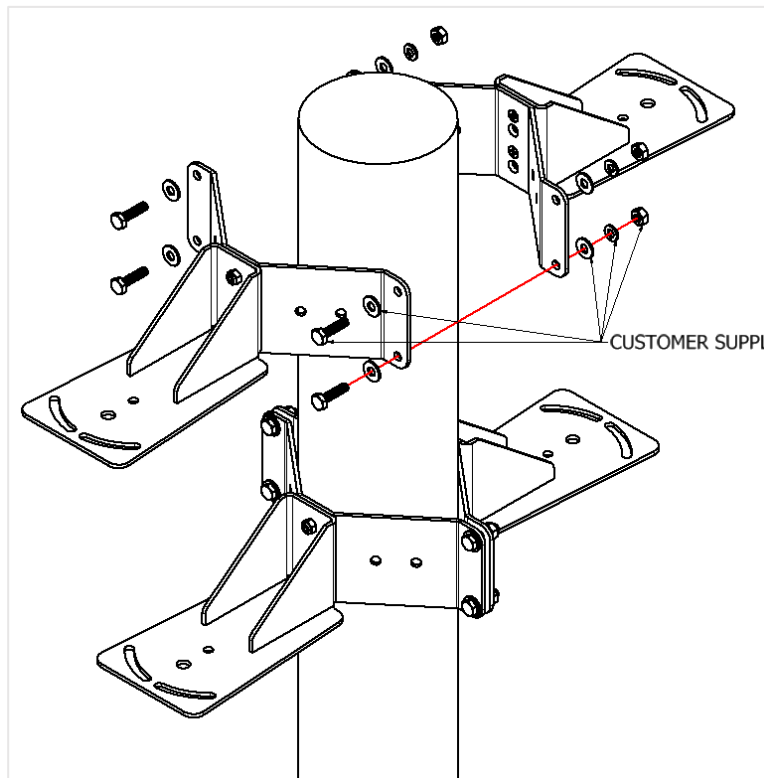


Figure 18: Bi-Directional Top Bracket Assembly

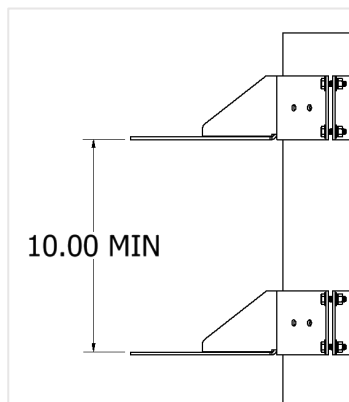


Figure 19: Bracket Spacing

5. Mount Transformer (E) to the two Transformer Bracket Assemblies using bolt (H), washer (J), and locknut (K) as shown.

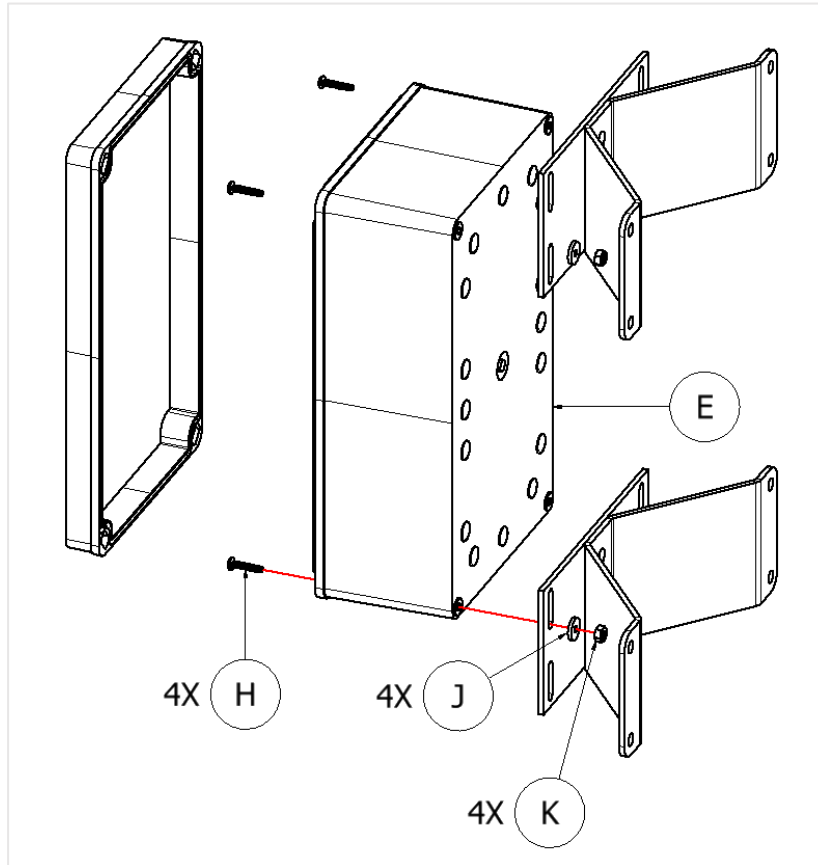


Figure 20: Transformer Assembly

6. Orient Transformer assembly on the pole so the cable glands are facing towards the ground. Using one Pole Mount Bracket (A) bolt the top Transformer Bracket Assembly together using customer supplied 1/4-20 hardware. Use Bolt and washer on one side and washer, lock washer, and nut on the opposite side.

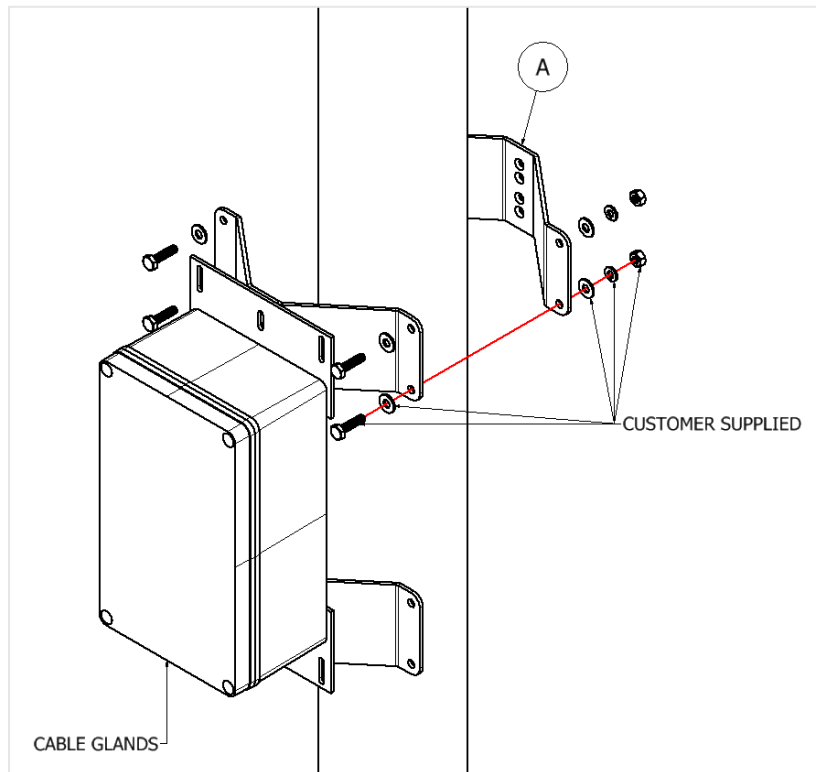


Figure 21: Transformer Top Bracket Assembly

7. Using one Pole Mount Bracket (A) bolt the bottom Transformer Bracket Assembly together using customer supplied 1/4-20 hardware. Use Bolt and washer on one side and washer, lock washer, and nut on the opposite side.

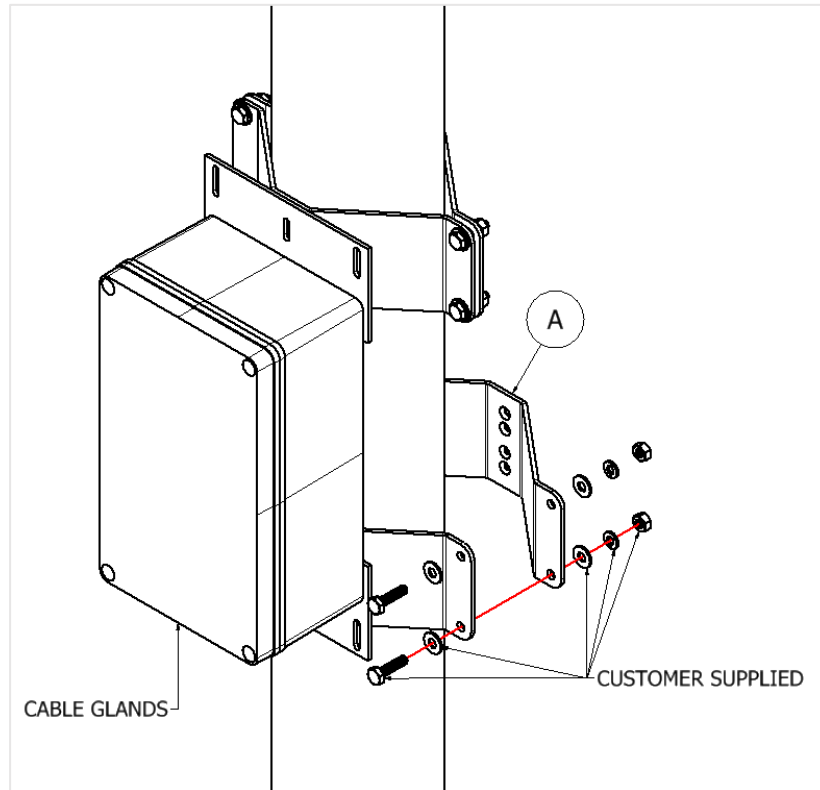


Figure 22: Transformer Bottom Bracket Assembly

8. If installing Knuckles (D) see **Section 4.6**
9. Install TCPA-10 speakers per **Section 4.7** if using Knuckles, **Section 4.8** without Knuckles.
10. Wire TCPA-10 Speakers to Transformer per **Section 3.4**

NOTE: It is recommended that a drip loop is made when routing speaker cables to reduce risk of water intrusion in transformer.

4.5 Assembly to Pole (Linear Array)

1. Take one TCPA-Q Bracket Assembly oriented such that the protruding flat is on the bottom and one Pole Mount Bracket (A). Determine the desired location of the bottom row speaker.
2. Using customer supplied 1/4-20 hardware bolt the two assemblies to each other around the pole. Use Bolt and washer on one side and washer, lock washer, and nut on the opposite side.

To ease with assembly, and if possible, the brackets can be loosely bolted to each other and slid down the pole to the desired position.

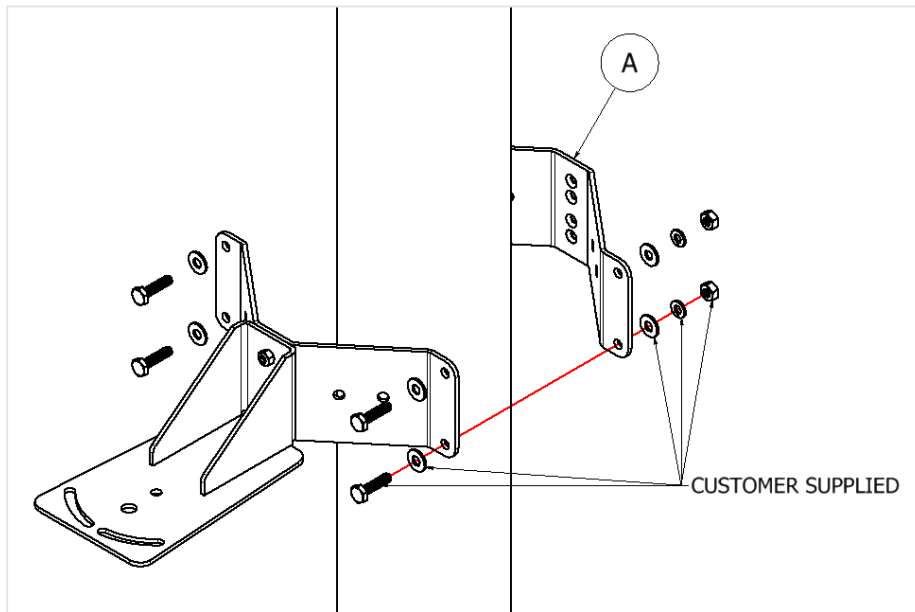


Figure 23: Linear Array Bottom Bracket Assembly

3. Take the next T CPA-Q Bracket Assembly oriented such that the protruding flat is on the bottom and one Transformer Bracket Assembly oriented so that the protruding nut and bolt are positioned at the bottom. Position the brackets so that the distance between the top brackets and the bottom brackets is a **minimum of 10"**. If installing Knuckles, **minimum of 12.5"** is required.
4. Using customer supplied 1/4-20 hardware and bolt the two assemblies to each other around the pole. Use Bolt and washer on one side and washer, lock washer, and nut on the opposite side.

To ease with assembly, and if possible, the brackets can be loosely bolted to each other and slid down the pole to the desired position.

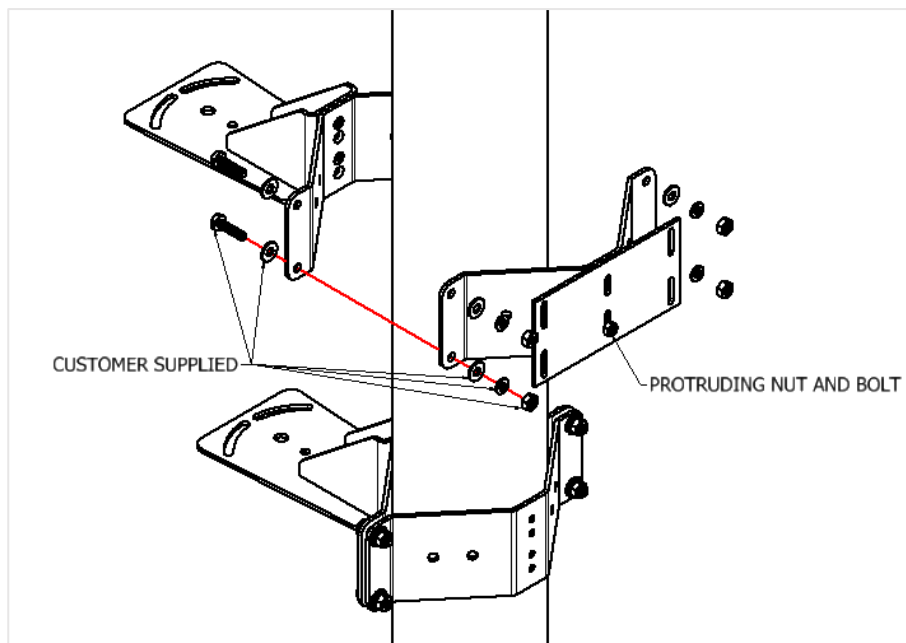


Figure 24: Linear Array Bottom Bracket Assembly

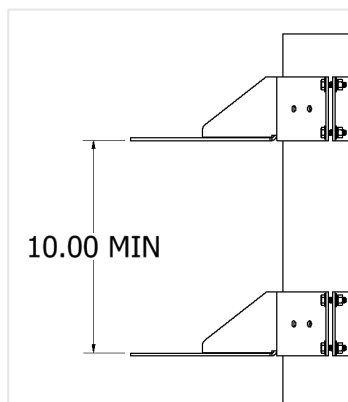


Figure 25: Bracket Spacing

5. Repeat steps 3 and 4 except orient the Transformer Bracket so that the protruding nut and bolt are positioned at the top.
6. Repeat steps 1 and 2 for final brackets.
7. Mount Transformer (E) to the two Transformer Bracket Assemblies using bolt (H), washer (J), and locknut (K) as shown.

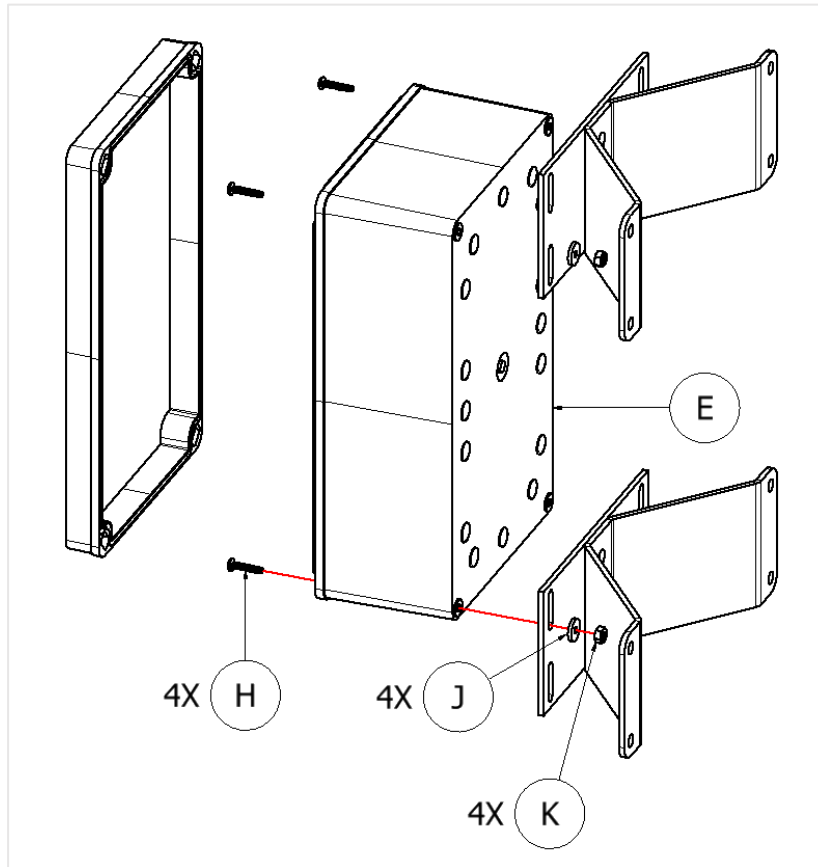


Figure 26: Transformer Assembly

8. If installing Knuckles (D) to TCPA-see **Section 4.6**
9. Install TCPA-10 speakers per **Section 4.7** if using Knuckles, **Section 4.8** without Knuckles.
10. Wire TCPA-10 Speakers to Transformer per **Section 3.4**

NOTE: It is recommended that a drip loop is made when routing speaker cables to reduce risk of water intrusion in transformer.

4.6 Knuckle Assembly

Table 5: Hardware Key

Item	Description	Qty
D1	3/8-16 x 1.00" Bolt	1
D2	3/8 Washer	2
D3	3/8-16 Lock Nut	1
D4	10-32 x 0.75" Bolt	3
D5	#10 Washer	6
D6	10-32 Lock Nut	3



Figure 27: Knuckle Included Hardware

1. Install Knuckle (D) to the bottom side of the TCPA-Q Bracket Assembly. Install with included 3/8-16 bolt (D1), washers (D2), and lock nut (D3) as shown.

NOTE: The use of the Knuckle on Linear Array and Bi-Directional Array mounting options will result in a larger spacing between speakers.

NOTE: Omni-Array mounting option requires the use of the Knuckles.

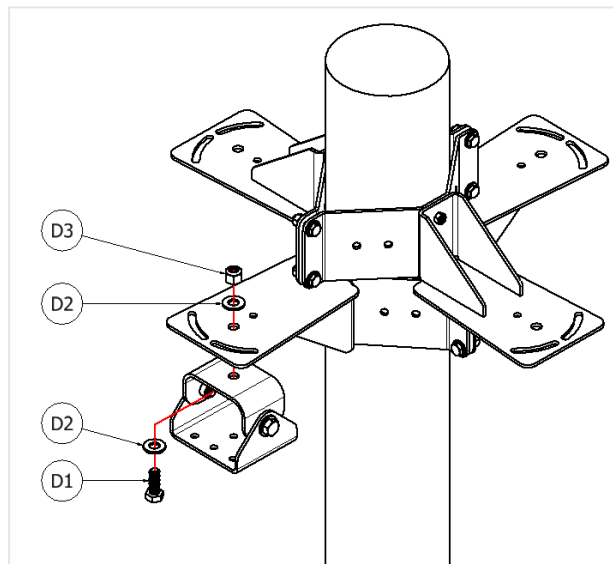


Figure 28: Knuckle Assembly

2. Set aside 10-32 hardware (D4 - D6), included with Knuckle, for speaker installation.

4.7 Speaker Assembly with Knuckle

1. Gather 10-32 Bolts, washers, and nuts (D4 - D6) included with Knuckle (D)

Table 6: Hardware Key

Item	Description	Qty
D1	3/8-16 x 1.00" Bolt	1
D2	3/8 Washer	2
D3	3/8-16 Lock Nut	1
D4	10-32 x 0.75" Bolt	3
D5	#10 Washer	6
D6	10-32 Lock Nut	3

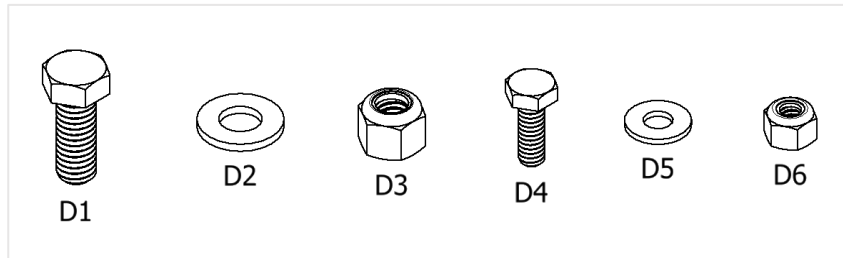


Figure 29: Knuckle Included Hardware

2. Install TCPA-10 speaker to Knuckle (D) with 10-32 hardware (D4 – D6) as shown.

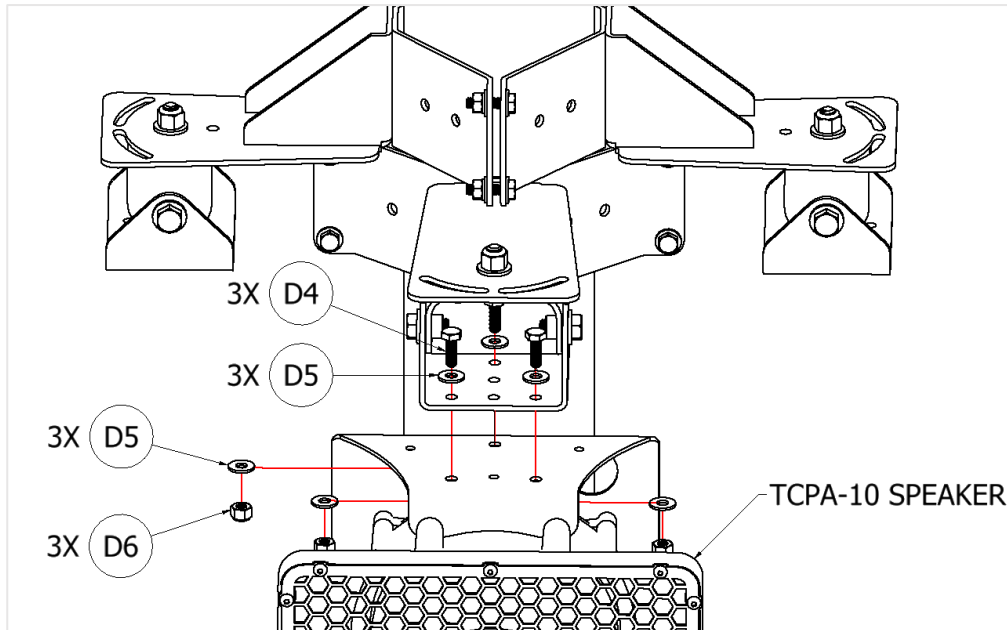


Figure 30: Speaker Assembly

4.8 Speaker Assembly without Knuckle

1. Gather 10-32 Bolts, washers, and nuts (D4 - D6) included with Knuckle (D)

Table 7: Hardware Key

Item	Description	Qty
D1	3/8-16 x 1.00" Bolt	1
D2	3/8 Washer	2
D3	3/8-16 Lock Nut	1
D4	10-32 x 0.75" Bolt	3
D5	#10 Washer	6
D6	10-32 Lock Nut	3

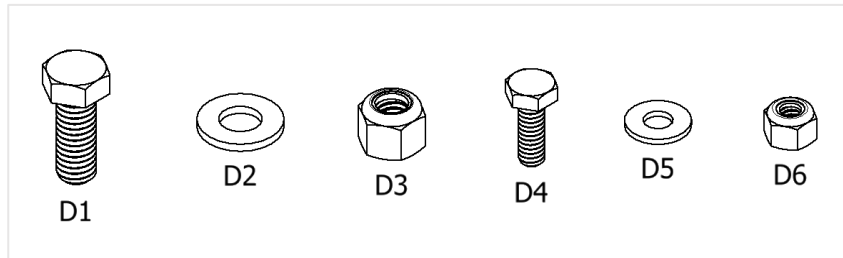


Figure 31: Knuckle Included Hardware

2. Install TCPA-10 speaker to TCPA-Q Bracket Assembly with 10-32 hardware (D4 – D6) as shown.

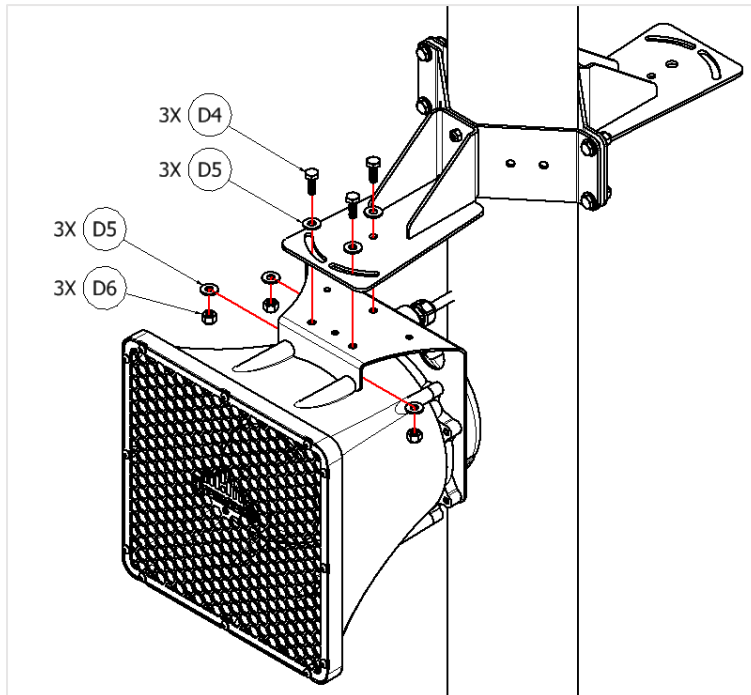


Figure 32: Speaker Assembly



5. WARRANTY

Ultra Electronics – USSI warrants that its products shall conform to the published specifications as of the date of order and shall be free from defects in material and workmanship.

Upon receipt of the returned product(s), Ultra Electronics – USSI will repair or replace any and all product(s) at its discretion. Ultra Electronics – USSI will not issue a credit for product(s) returned through the Return Authorization process. This warranty is extended to the original purchaser and all subsequent owners, provided a copy of the original dated bill of sale is presented when service is requested under warranty.

HyperSpike® Warranty Period

Such warranty shall extend for a period of one (1) year from the date of shipment from USSI's facility.

How to obtain service under this warranty

If your product(s) should require service, please write, phone, fax, or email us at:

Ultra Electronics – USSI
4868 East Park 30 Drive
Columbia City, Indiana, USA 46725
Phone: 260-248-3665
Email: ServiceDepartment@ultra-ussi.com

Ultra Electronics – USSI will provide a Return Material Authorization (RMA) number so that you can ship the product(s) to our factory. Do not ship the product(s) to us without first obtaining an RMA number. Place the RMA number on all boxes returned to the factory. You are responsible for transporting your product(s) to our factory. We will pay the return shipping charges on all product(s) repaired under warranty.

Failures not covered by this warranty

This warranty covers defects in manufacture only. It does not cover:

1. damage caused by accident, misuse, abuse, product modification, or neglect;
2. damage incurred during shipment (you must claim these damages from the carrier);
3. damage resulting from failure to operate the product in accordance with the instruction manual; or
4. damage resulting from attempted repairs by unauthorized personnel.

Exclusion of certain damages

Ultra Electronics – USSI's liability is limited to the repair or replacement, at our option, of any defective product(s) and shall in no event include indirect, consequential, incidental, punitive, or special commercial damages of any kind. Some states do not allow the exclusion or limitation of indirect, consequential, incidental, punitive, or special damages so the preceding limitation or exclusion may not apply to you.

Warranty after repairs

An additional warranty of ninety (90) days will be extended to any parts that were repaired or replaced. The original standard warranty or any extended warranty that was purchased at the original time of sale of the product(s) is still in effect for the remainder of the warranty term.